

CLAIMS:

1. A semiconductor laser module comprising:
  - a semiconductor laser element configured to produce laser light; and
  - a package being hermetically sealed and having an interior space that contains the semiconductor laser element, said package including a vent member that extends from said interior space to a space that is exterior to said package, wherein,
    - when unsealed, said vent member being configured to transport a low heat conduction gas between the interior space and the exterior, and
    - when sealed, said vent member being configured to prevent a flow of gas between the interior space and the exterior.
2. The semiconductor laser module of claim 1, wherein:
  - 15 said package having a first side and a second side, said second side being positioned across said interior space from said first side,
  - 15 said first side being configured to allow said laser light to pass therethrough, and
  - 15 said vent member being disposed in said second side.
3. The semiconductor laser module according to claim 1, wherein:
  - 20 said vent member being shaped as a pipe.
4. The semiconductor laser module according to claim 1, wherein:
  - 25 said vent member is configured to be hermetically sealed after an occurrence of at least one of a first condition and a second condition,
    - 25 said first condition being that the low heat conductor gas has been introduced into the package via the vent member, and
    - 25 said second condition being that the low heat conduction gas has been exhausted from the package via the vent member.
5. The semiconductor laser module of claim 4, wherein:
  - 30 said package having a first side and a second side, said second side being positioned across said interior space from said first side;

said first side being configured to allow said laser light to pass therethrough, and  
    said vent member being disposed in said second side; and

the vent member contains a portion that extends beyond the second side of said package, and the portion of said vent member is sealed first by being swaged and

5 subsequently by being welded.

6. The semiconductor laser module of claim 4, wherein:

said vent member is configured to receive the low heat conduction gas from a gas introducing device when said vent member is not sealed.

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7. The semiconductor laser module of claim 6, wherein:

said vent member is configured to receive the low heat conduction gas from the gas introducing device via a controllable valve.

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8. The semiconductor laser module of claim 6, wherein:

said selector device is configured to select one of

the low heat conduction gas from the gas introducing device to be provided to the package, and

gas contained in the interior space of the package to be exhausted from the interior space.

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9. The semiconductor laser module of claim 1, further comprising:

another vent member that extends from said interior space to outside of said package, wherein

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said vent member when unsealed is configured to receive a low heat conduction gas from a gas source, and

said another vent member when unsealed is configured to exhaust gas from said interior space.

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10. The semiconductor laser module of claim 1, wherein:

said vent member is configured to be sealed by being swaged closed.

11. The semiconductor laser module of claim 10, wherein:

5           said vent member is configured to be permanently sealed by being welded shut after being swaged.

12. A semiconductor laser module comprising:

10           a semiconductor laser element configured to produce laser light; and

          a package being hermetically sealed and having an interior space that contains the semiconductor laser element, said package includes

15           means for providing a low heat conduction gas to the interior space, and

          means for exhausting gas from the interior space.

13. A method for producing a semiconductor laser module, comprising steps of:

20           disposing a semiconductor laser element in an interior space of a package;

          sealing the package, except for a vent member that communicatively connects said interior space and an exterior space when open;

          transporting a low heat conduction gas between the interior space and the exterior space through the vent member; and

          hermetically sealing the vent member.

14. The method of claim 13, wherein:

25           said hermetically sealing step includes temporarily sealing the vent member by swaging a predetermined portion of said vent member that is accessible from an exterior of said package.

15. The method of claim 14, wherein:

          said hermetically sealing step further includes welding the vent member so as to permanently seal the vent member.

30           16. The method of claim 15, wherein:

said welding step includes at least one of ultra-sonic welding and inert gas Tungsten arc welding.

17. The method of claim 13, wherein:

5        said transporting step includes providing the low heat conduction gas from an external gas source to the interior space via the vent member; and further comprising a step of

removing a gas from the interior space via another vent member.

10      18. The method of claim 13, wherein:

      said transporting step includes substeps of

      evacuating a gas from the interior of the package through the vent member, and

      providing the low heat conduction gas from an external gas source to the interior space via the vent member.

15      19. The method of claim 18, wherein:

      said transporting step includes switching a flow direction of gas through said vent member,

20        said switching step being performed between said evacuating step and said providing step.